# AMERICAN RIVER PARKWAY
# FLOODWAY VEGETATION MANAGEMENT PLAN

**Summary**
September 9, 2008

Sacramento County Department of Regional Parks (County Parks) with assistance from EDAW and MBK Engineers, and in coordination with Sacramento Area Flood Control Agency (SAFCA), is preparing a Floodway Vegetation Management Plan (FVMP) for the American River Parkway (ARP) between River Mile 14 (approximately William Pond Park) and the confluence with the Sacramento River. The state-federal Project levees extend from RM 0 to RM 14 on the American River.

## Background

On March 17, 2006 the Reclamation Board (subsequently renamed the Central Valley Flood Protection Board [CVFPB]) approved the County's request for a floodplain encroachment permit (No. 18024BD) for a 26.6-acre VELB mitigation project for the Western Area Power Authority in the Woodlake area of the ARP. The permit contains several general conditions and special conditions including the following that are specific to flood conveyance:

- Condition No. 17 – develop a functional 2-dimensional hydraulic model of the American River Floodway of the cumulative effect of this project and all other restoration/mitigation projects proposed or which may be proposed in the American River Floodway in the future including, but not limited to, those in the American River Parkway Plan (as being updated) and the River Corridor Management Plan, to the satisfaction of ARFCD and the Reclamation Board.

- Condition No. 18 – submit a vegetation management plan that promotes timely and cost-effective maintenance of channel and flood control facilities in the ARP. The plan shall address, but is not limited to, the following issues regarding elderberry bushes: incidental take authority for impacts to federally-listed Valley elderberry longhorn beetle, relaxed perimeters around existing bushes for maintenance activities or staging areas, and the removal and transplanting of existing bushes where necessary to improve flood maintenance or channel conveyance for the ARP to determine where restoration can occur without impairing floodway conveyance.

Responding to the Board's concerns and addressing these permit conditions was the genesis of the FVMP. SAFCA is a cooperating agency in support of County Parks to prepare the FVMP, and funded the first year of RMA 2-D hydraulic modeling by MBK.

underground and overhead utility corridors; bridge supports and other essential infrastructure.

- Identify **Restoration Potential Zone** (RPZ) areas in the ARP where physical site conditions (soils, topography, and hydrology) are conducive to the establishment and sustainability of one or more natural plant communities, whether for mitigation or restoration potential; **and, areas not designated as HSZ or LRZ.** Areas having restoration potential were previously identified in the Lower American River Corridor Management Plan (RCMP), and modified in the more recent ARPP Update to be consistent with other Plan land use designations. However, these potential restoration/mitigation sites were not evaluated for their compatibility with floodway and levee management needs such as the HSZ, completed and planned levee upgrade and bank protection projects, levee access roads, or modified operations of flood releases from Folsom Dam.

- Establish a record of all existing and planned mitigation projects in the ARP, including the responsible permitting agencies, permit applicant, planted vegetation type, and long-term management obligations.

- Ensure consistency with the draft 2006 American River Parkway Plan Update (ARPPU) and the 2002 River Corridor Management Plan (RCMP).

- Provide a floodway vegetation management plan for California Environmental Quality Act (CEQA) analysis of the FVMP to be conducted by Sacramento County.

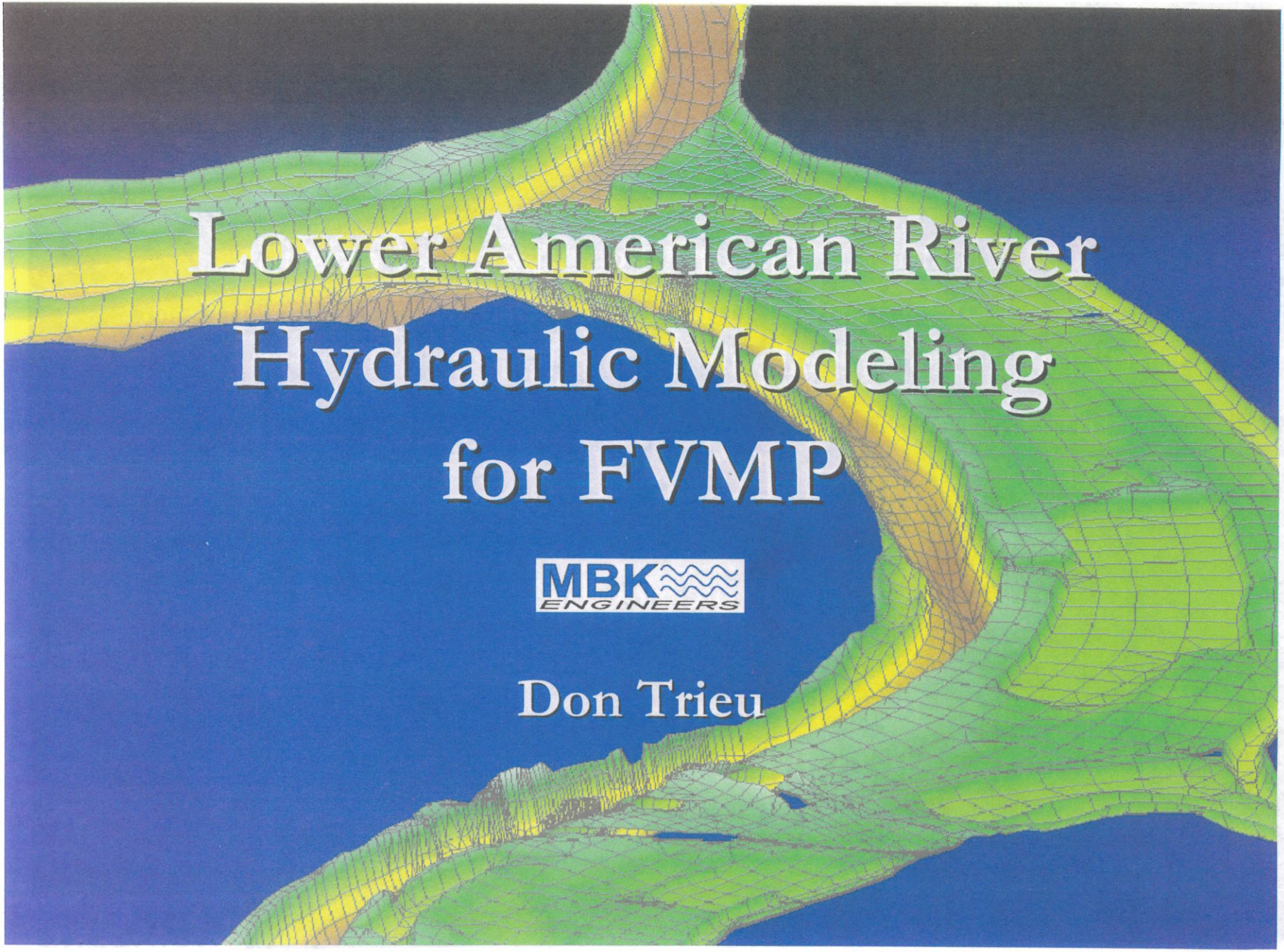
Future goals for implementation of the FVMP are to:

- Obtain a programmatic CVFPB floodway encroachment permit for future habitat mitigation projects and other ecological restoration activities in the ARP that are shown to not compromise floodway conveyance and management, or interfere with levee inspection and maintenance (i.e., RPZ) sites;

- Obtain programmatic regulatory compliance with the Endangered Species Act (ESA) for maintenance of channel and flood control facilities and other required maintenance activities in the ARP that may affect valley elderberry longhorn beetle (VELB);

- Identify an agency or institution responsible for maintaining updates and revisions to the RMA 2-D hydraulic model as future vegetation conditions change hydraulic roughness characteristics of the floodway;

- Ensure that all future habitat mitigation, vegetation management, and restoration projects in the ARP are consistent with FVMP Management Zone designations, including limitations to increased hydraulic roughness effects on flood stage and conveyance capacity.


Lower American River
Hydraulic Modeling
for FVMP
MBK
ENGINEERS
Don Trieu

# LAR 2-D Model

- Model extents : RM 0 to RM 14 Levee Reach
- Developed by Ayers & Associates using RMA-2
- Model has been used to analyze numerous projects:
  - Fairbairn Water Treatment plant expansion.
  - Evaluate erosion potential for FEMA Cert.
  - Spanwing bed mobilization
- Calibrated to January 1997 flood.

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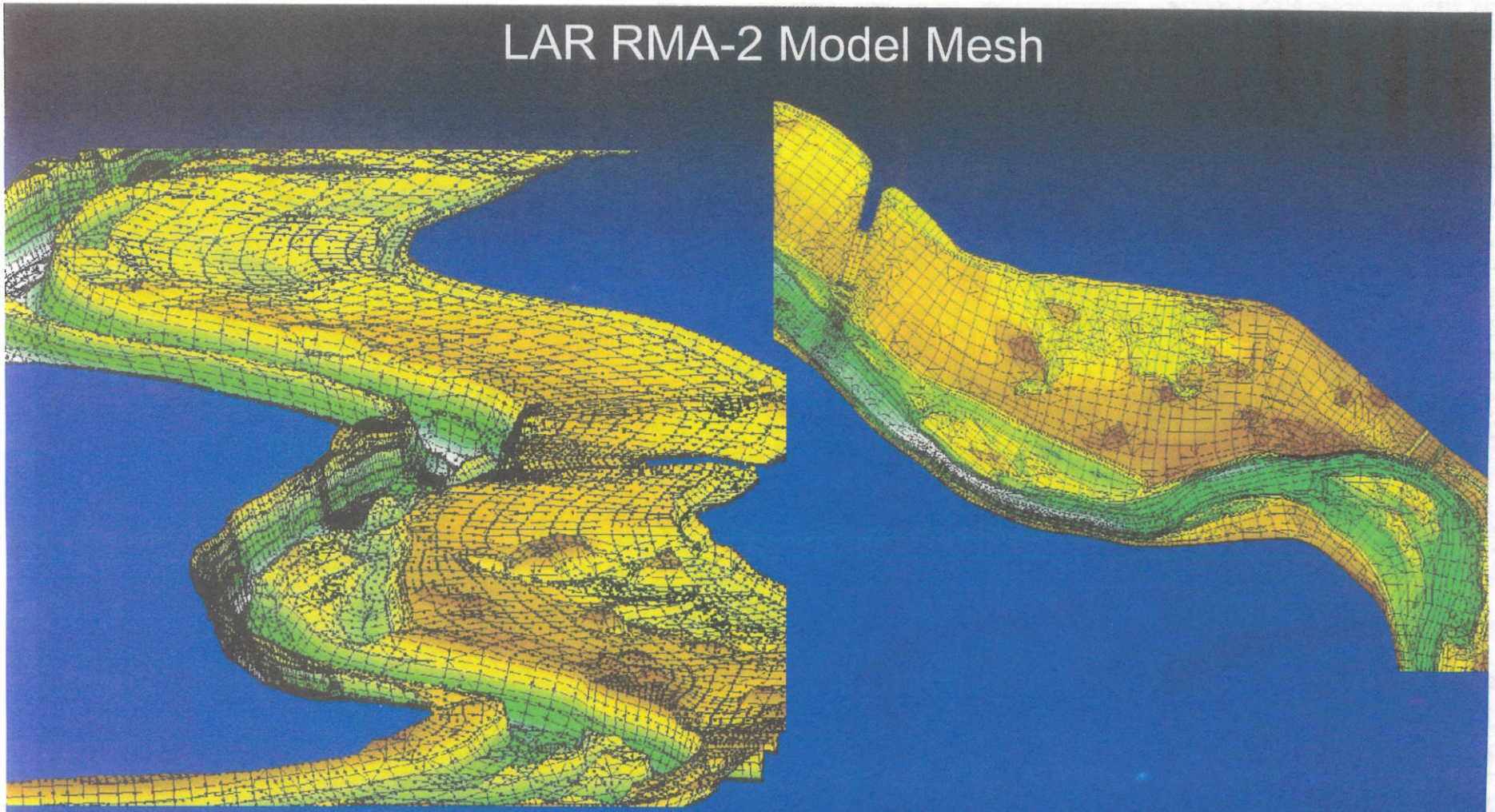
# LAR RMA-2 Model Mesh



- Model mesh represents LAR floodplain and bathymetry.
- Mesh consists of elements and nodes.
- Mesh generated from topography and bathymetry surveyed in 1997.

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# Model Methodology

- Step 1: Perform simulation with vegetation loaded up with the maximum enhancement and mitigation areas as envisioned by various agencies.
- Step 2: Perform simulation using the proposed objective release flow in the LAR of 160,000 cfs.
- Step 3: Compare water surface and velocity output to determine impacts associated with project condition. Review results to determine if water surface impacts are significant and adequate freeboard??
- Step 4: If impacts are significant, make modifications to proposed enhancement and mitigation areas.
- Step 5: Repeat Steps 2 to 4.

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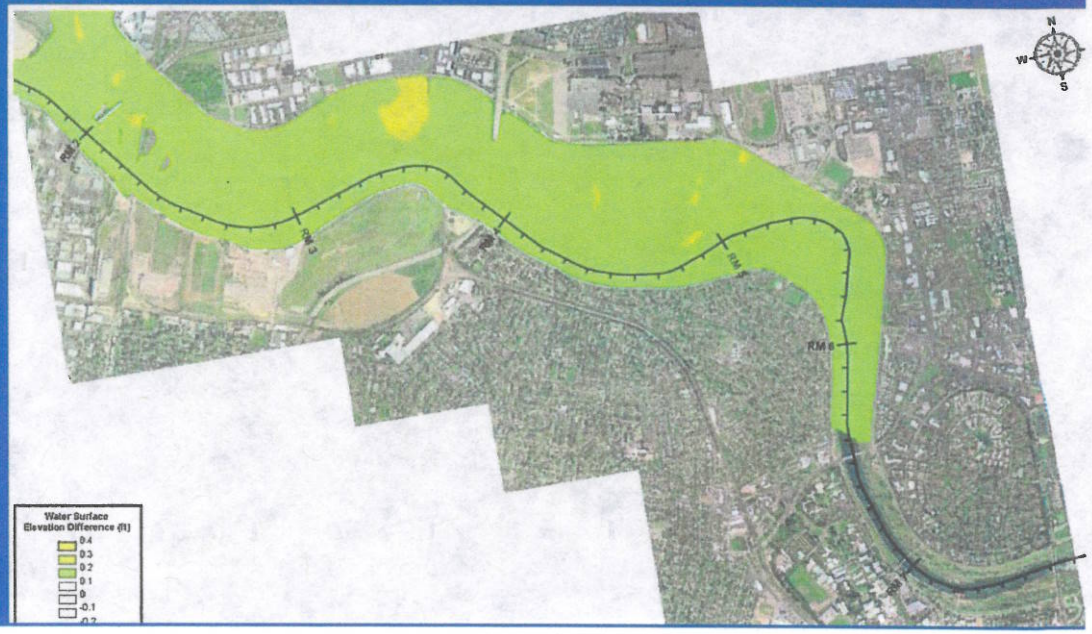
# Example: Cal Expo Bushy Lake Area


Revised Habitat Enhancement Areas to Reduce Hydraulic Impacts

Water Surface Elevation Difference

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